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EXAMINER

VARCOE JR, F

ART UNIT

PAPER NUMBER

1764

DATE MAILED: 11/24/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/231,791

Applicant(s)

Guarino et al.

Examiner

Varcoe

Group Art Unit
1764



☒ Responsive to communication(s) filed on Jan 15, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-10 is/are pending in the application

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-10 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☒ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

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DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: In the Abstract, line 11, "proving" should be changed to "providing." Reference is made to "Figure 1." This implies that there are other figures, but there are not. Simply "Figure" would be acceptable.

Appropriate correction is required.

On page 7, line 13, reference is made to "Perforated walls 7." Line 22 refers to "gas inlet wall 7," line 24 refers to "gas inlet wall 6," and on page 8, line 2 refers to "side walls 7."

Consistent terminology and consistent use of reference numerals is requested.

On page 7, line 14, and page 9 line 12, the meaning of the word "respectively" is unclear. Please rewrite those sentences.

On page 7, lines 16-18, the sentence is unclear. Part of the confusion arises from uncertainty as to the scope of the word "not" and the referent of the word "same."

2. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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Claim Objections

3. Claims 1 and 5 are objected to because of the following informalities:

With regard to claim 1, in line 5, it would be clearer if it were phrased similar to the following: "the gas inlet wall (7) and the gas outlet wall (8)."

With regard to claim 6, the "unperforated cylindrical wall" (line 12) and "means for closing" (line 22) are placed in said catalytic bed. But it would appear that they are actually located outside the bed, and not in it.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 1 and 6, the phrase "... type" renders the claims indefinite because the claims include elements not actually disclosed (those encompassed by "the type"), thereby rendering the scope of the claims unascertainable. See MPEP § 2173.05(d).

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Regarding claim 1, lines 16-21, it is not clear what is intended. With regard to "means for closing said free-space," normally it is passages that are closed and not spaces. Spaces are normally enclosed, not closed. Is the closing means intended to be located between the unperforated wall and the gas outlet wall? Or is it the space that is located there? This is unclear. In line 20, the phrase "entering respectively leaving" is unclear. Please clarify.

Claim 6, line 26 also contains "entering respectively leaving."

Claim 1 recites the limitation "said gas outlet wall (8)" in line 9. There is insufficient antecedent basis for this limitation in the claim.

In claim 5, line 4, it is unclear what the word "respectively" means.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller U.S. Patent Number 5,372,792, in view of Zardi U.S. Patent Number 4,405,562.

With regard to claim 1, Mueller discloses construction of an assembly having an unperforated cylindrical wall (Figure 1 (24)) coaxial to the gas outlet wall in the catalytic bed, the unperforated cylindrical wall extending from an upper end of the gas outlet wall for a portion of the outlet wall of a prefixed length. Mueller Figure 1.

Mueller discloses providing means for closing the free-space between the unperforated wall and the gas outlet wall, in proximity of the upper end of the gas outlet wall, preventing a bypass of the catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor. Mueller Figure 1; column 2 lines 50-54.

Mueller does not disclose positioning of the unperforated cylindrical wall such that the unperforated portion extends into the catalyst bed.

Zardi discloses an unperforated cylindrical wall where an unperforated portion extends into the catalyst bed. Zardi Figure. The purpose is to force gas entering the catalyst bed from the top to travel some distance through the catalyst before entering the gas outlet, thus creating axial flow at the top of the reactor and radial flow in the rest of the reactor. This prevents gas entering the reactor from bypassing the catalyst bed at the top of the inner gas outlet wall.

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Mueller does not disclose a free-space between the gas outlet wall and the unperforated wall. Neither does Zardi. But it would have been obvious to modify the invention of Mueller, with its perforations higher in the catalyst bed, by extending Mueller's unperforated cap, to get an apparatus according to the invention of Zardi with an unperforated region extending further down into the bed than Mueller's extends. The purpose of extending Mueller's unperforated cap would be to further limit catalyst bypassing. This extension would create an annular free-space region between the existing perforated wall and the added unperforated cap.

It would have been obvious to those skilled in the art at the time of the invention to combine the unperforated section of Zardi to Mueller's apparatus having an unperforated cap, and extend the cap lower into the bed as does Zardi, to get the invention of claim 1.

The motivation would be to prevent gas entering the reactor from bypassing the catalyst bed.

With regard to claim 2, adjusting the length of the unperforated wall is a result-effective variable and thus could be carried out by one skilled in the art.

With regard to claim 3, determining the thickness of the free-space is a result-effective variable and thus could be carried out by one skilled in the art.

With regard to claim 4, Mueller discloses the unperforated wall supported by the gas outlet wall. Mueller Figure 1.

With regard to claim 5, Mueller discloses a gas outlet wall having a diameter smaller than the diameter of the gas inlet wall and of the unperforated wall. Mueller Figure 1.

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Mueller further discloses the unperforated wall supported by a gas-tight horizontal baffle (Figure 1 (23)) which protrudes above the upper end of the gas outlet wall and leans on the gas outlet wall. Mueller Figure 1.

With regard to claim 6, Mueller discloses apparatus having an unperforated cylindrical wall (Figure 1 (24)) coaxial to the gas outlet wall in the catalytic bed, the unperforated cylindrical wall extending from an upper end of the gas outlet wall for a portion of the outlet wall of a prefixed length. Mueller Figure 1.

Mueller discloses providing means for closing the free-space between the unperforated wall and the gas outlet wall, in proximity of the upper end of the gas outlet wall, preventing a bypass of the catalytic bed or a recycling to the catalytic bed of the gas entering and leaving the reactor. Mueller Figure 1; column 2 lines 50-54.

Mueller does not disclose the unperforated cylindrical wall extending into the catalyst bed.

Zardi discloses an unperforated cylindrical wall where an unperforated portion extends into the catalyst bed. Zardi Figure. The purpose is to force gas entering the catalyst bed from the top to travel some distance through the catalyst before entering the gas outlet, thus creating axial flow at the top of the reactor and radial flow in the rest of the reactor. This prevents gas entering the reactor from bypassing the catalyst bed at the top of the inner gas outlet wall.

Mueller does not disclose a free-space between the gas outlet wall and the unperforated wall. Neither does Zardi. But it would have been obvious to modify the invention of Mueller,

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with its perforations higher in the catalyst bed, by extending Mueller's unperforated cap, to get an apparatus according to the invention of Zardi with an unperforated region extending further down into the bed than Mueller's extends. The purpose of extending Mueller's unperforated cap would be to further limit catalyst bypassing. This extension would create an annular free-space region between the existing perforated wall and the added unperforated cap.

It would have been obvious to those skilled in the art at the time of the invention to combine the unperforated section of Zardi to Mueller's apparatus having an unperforated cap, and extend the cap lower into the bed as does Zardi, to get the invention of claim 6.

The motivation would be to prevent gas entering the reactor from bypassing the catalyst bed.

With regard to claim 7, adjusting the length of the unperforated wall is a result-effective variable and thus could be carried out by one skilled in the art.

With regard to claim 8, determining the thickness of the free-space is a result-effective variable and thus could be carried out by one skilled in the art.

With regard to claim 9, Mueller discloses the unperforated wall supported by the gas outlet wall. Mueller Figure 1.

With regard to claim 10, Mueller discloses a gas outlet wall having a diameter smaller than the diameter of the gas inlet wall and of the unperforated wall. Mueller Figure 1.

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Mueller further discloses the unperforated wall supported by a gas-tight horizontal baffle (Figure 1 (23)) which protrudes above the upper end of the gas outlet wall and leans on the gas outlet wall. Mueller Figure 1.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rick Varcoe, whose telephone number is (703) 306-5477. The examiner can normally be reached Monday through Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marian Knode, can be reached on (703) 308-4311.

The FAX telephone number for this Group Art Unit is (703) 305-3599 (for Official papers after Final), (703) 305-5408 (for other Official papers) and (703) 305-6357 (for Unofficial papers).

When filing a FAX in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of the application. This will expedite processing your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

Marian C Knode

RV
November 19, 1999

MARIAN C. KNODE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700